State of Alaska
Department of Fish and Game
Nomination for Waters
Important to Anadromous Fish

1987
Year of Revision
87-324

AWC Volume & Number INTERIOR REGION IV

USGS Quad 114 BEAVER 1:250,000 & C-4 (New map)

Name of Waterway HODZANA RIVER

AWC# of Waterway 334-40-11000-2799-3004

Change to _____ Atlas
_____ Catalog
X Both

Addition _____
Deletion _____
Correction X

Name addition _____
USGS name HODZANA RIVER
Local name HODZANA RIVER

For Office Approval

Nomination II _____

[signature] 9/25/86
Regional Supervisor Date

OK STS 11/19/86

F1 11/13
Drafted OCT 1 1986

ALASKA DEPT OF FISH & GAME
REGION II
HABITAT DIVISION

Species	Date(s) Observed	Spawning	Rearing	Migration
Chum Salmon	1983-84	✓	✓	✓
	(See Attached Report Reference)			

Comments: Provide any clarifying information, including number of fish observed, location of fish survey data, etc.

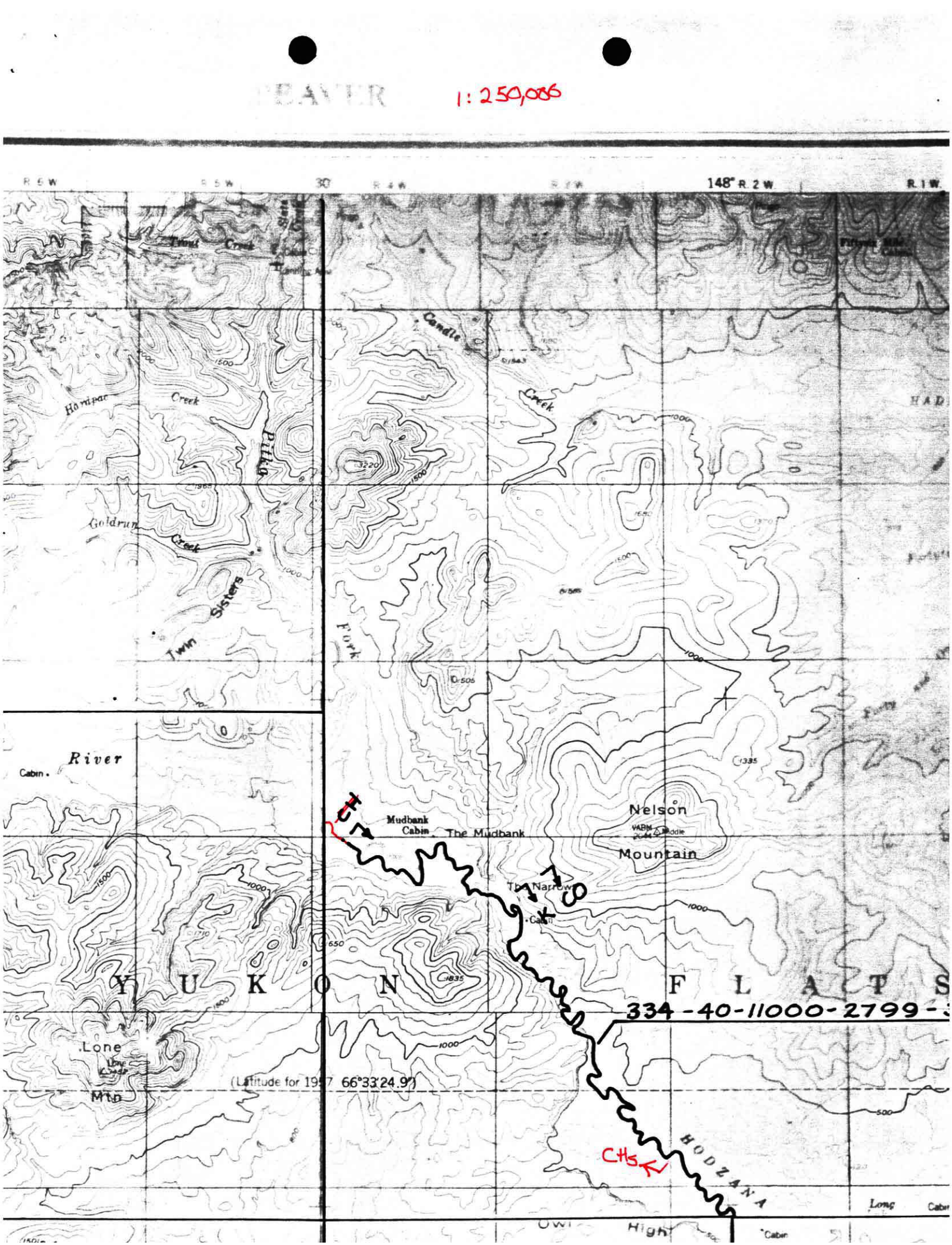
Using gillnets, aerial surveys and radio telemetry in 1983 and/or 1984 adult chum salmon were observed as far upstream as the confluence of Granite Fork in the Hodzana River. Potential areas of spawning were identified by radio telemetry and are shown on attached maps and text.

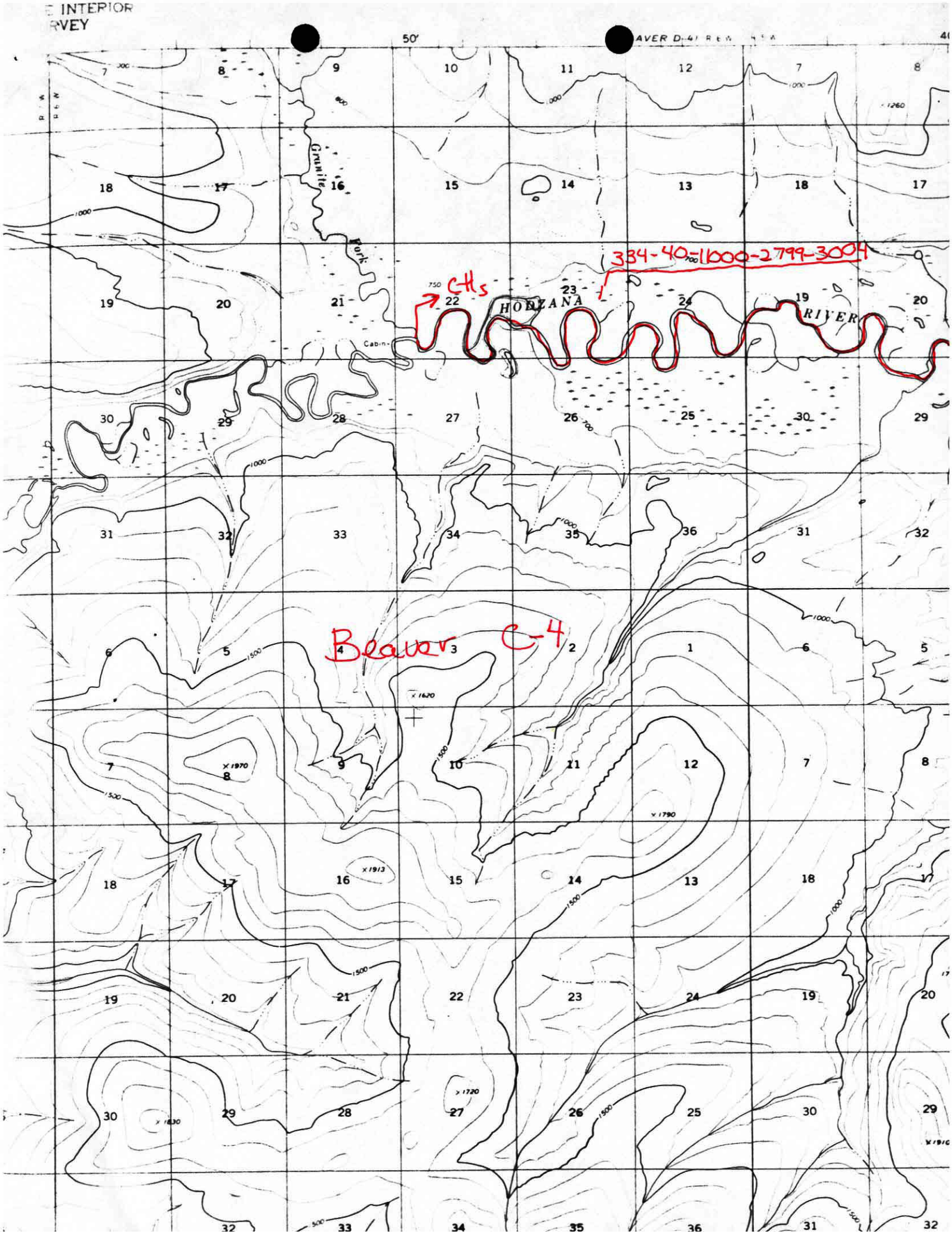
Attach a copy of a map showing location of mouth and upper points of each species, specific stream reaches identified for spawning or rearing, locations of barriers, such as falls. Attach a copy of the fish survey data, if available.

Name of Observer (please print) REED S. GLESNE (USFWS)

Date: 5-15-85 Signature: Lynn A. Barton (ADF&G)

Address: 1300 College Rd
Fairbanks


BEAVER
1:250,000
148° R. 2 W
R. 1 W.
Twist Creek
Candle Creek
Honipar Creek
Pitka Fork
Goldrun Creek
Twin Sisters
Yukon River
Cabin
Mudbank Cabin
The Mudbank
Nelson Mountain
The Narrows
Cabin
Yukon Flats
Lone Mtn
(Latitude for 195 66°33'24.9")
Hodzana
Long
Cabin
High
Cabin
334-40-11000-2799-3


INTERIOR
RVEY
50'
334-40-1000-2799-3004
CHs
HOLZANA
RIVER
Beaver C-4

Fairbanks Fishery Resources Report Number FY-85/3

FINAL REPORT
FISHERIES AND AQUATIC HABITAT SURVEY OF THE HODZANA RIVER YUKON FLATS NATIONAL WILDLIFE REFUGE, 1983 and 1984

Reed S. Glesne
Stephen J. Deschermeier
Patricia J. Rost

Fishery Resources
U.S. Fish & Wildlife Service
101 12th Avenue, Box 20
Fairbanks, Alaska 99701

20 March 1985

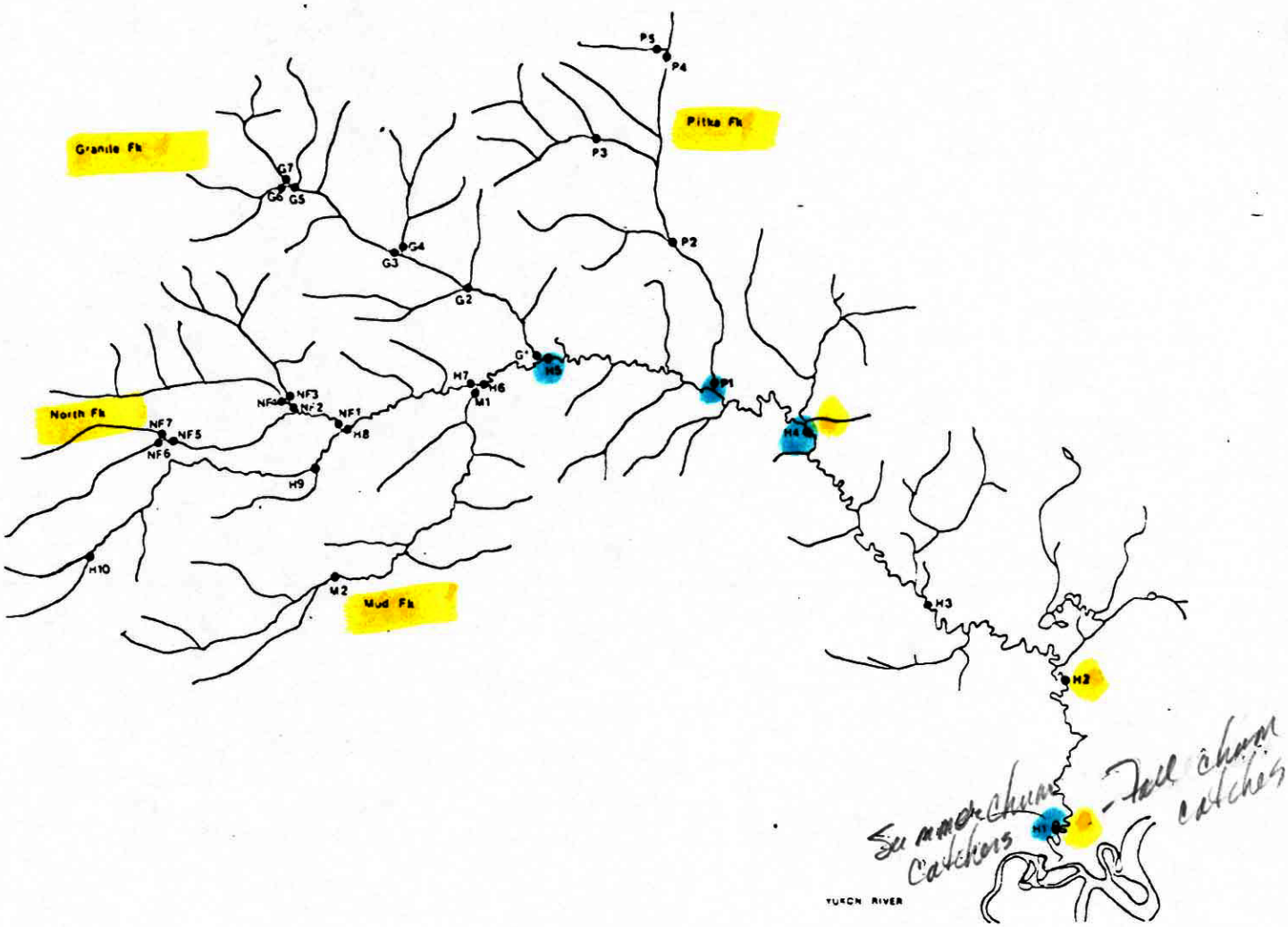


Figure 2. Sampling locations on the Hodzana River during 1983 and 1984.

Table 8. Adult (A) and juvenile (J) fish distribution for all stations on the Hodzana River, 1983 and 1984.

STATION	Northern Pike	Grayling	Summer Chum Salmon	Fall Chum Salmon	Dolly Varden	Broad Whitefish	Humpback Whitefish	Least Cisco	Round Whitefish	Burbot	Sheefish	Longnose sucker	Arctic lamprey	Slimy sculpin
MAIN HODZANA														
H1	A,J	A	A	A		A,J	A,J	A,J	J	J	A	J	A,J	
H2	A,J	A,J		A		A,J	A	A	J	J	A	A,J		A
H3	A,J	A,J						A	A,J			J		A
H4	A	A,J	A,J	A,J					A			A		A
P1*	A	A,J	A,J						A	J				A
H5*		A,J	A						A				A	
H6*		A							A				A	
H8*		A							A					
H9		A,J							A	A				
H10*		A												A
PITKA FORK														
P2*		A			A									
P3*		A,J												
P4*		A,J			A,J									A
GRANITE FORK														
G2*		A							A					
G3		A,J							J					
G4		A												
G5		A												
MUD FORK														
M2		A,J												A
NORTH FORK														
NF2*		A												
NF5*		A			A,J									

*Sampling station was located in a confluence area.

Least cisco, broad whitefish, humpback whitefish, and sheefish were collected at lower fourth order stations (H-1 and H-2). Juvenille fish of these species, except for sheefish, were also collected at these stations. Broad whitefish, humpback whitefish and least cisco exhibited the highest catch-rates (Table 9) during the early sampling period. All of these species were absent from Station H-2 during the September sampling period. Two adult sheefish were collected during 1983 (Stations H-1 and H-2) and one was collected during 1984 (Station H-1). These fish were collected during early and mid-summer sampling periods. It appears that they may use the lower Hodzana River for feeding during the summer and then migrate out sometime after early August.

Two longnose suckers were captured during June 1983, at Stations H-2 and H-4. During late July of 1983 and 1984, young-of-the-year longnose suckers were extremely abundant at Stations H-1, H-2, and H-3. The large number of juvenile suckers, collected by seines, at these stations indicates that adult suckers may be more abundant than indicated by gillnet catch-rates.

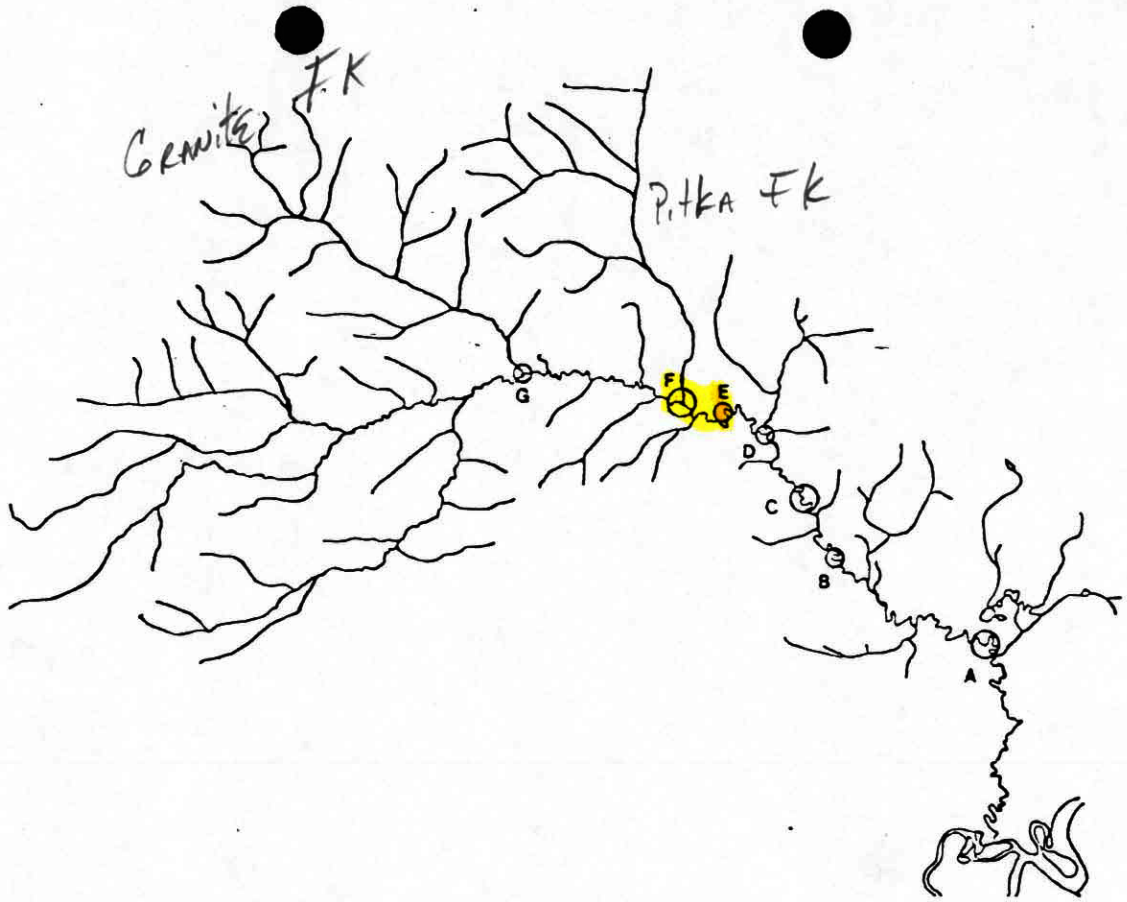
A few juvenile burbot were collected in minnow traps at Stations H-1, H-2, and P-1. One mature female was captured at Station H-9 during early September. It appears that burbot use the Hodzana for spawning and rearing only. During July, 1983, baited hooks were used at Station H-1 in an effort to capture adult burbot. A total effort of 1280 hook-hours failed to capture any burbot.

A total of six Dolly Varden were captured at upstream stations located on the North Fork (Station NF-5) and Pitka Fork (Stations P-2 and P-4). They ranged in size from 133 to 220 mm. Otolith age of these fish ranged from 4 to 7 years. Dolly Varden were collected primarily in first and second order reaches with gradients ranging from 1.3 to 2.5 percent and were predominated by riffle area. Pools greater than three feet deep were absent (Appendix, Table 11).

Figure 2

Summer and fall chum salmon use the Hodzana for spawning. Summer chum were collected as far upstream as Station H-5. Fall chum were collected as far as Station H-4. Gillnet catch-rates of summer and fall chum salmon (Table 9) were generally low (0.02 to 0.29 fish/hour). Aerial observations, radio telemetry information, and gillnet catch-rates indicate that both summer and fall runs of chum salmon number less than 1000 fish for each run. Potential spawning locations of summer and fall chum salmon as determined by radio telemetry and aerial observations are shown in Figure 13. Summer chum entered the Hodzana river during the last week of July for both 1983 and 1984. During 1984, eleven summer chum were implanted with radio tags at Station H-1. Three of these stayed at location A, two stayed at location B, two stayed at location C, one stayed at location D, and two stayed at location F (Figure 13). Fall chum entered the Hodzana during the first week of September. Eight tags were implanted (Station H-1) of which three were not located, one remained near Station H-1 and was assumed to be dead, and four migrated upstream to location B (Figure 13). A small group of fall chum salmon (less than 50) were observed from the air at location E. Chum salmon fry appear to migrate out of the Hodzana during early June. During 1983, chum fry were collected in the Pitka Fork just above its confluence with the Hodzana and at Station H-4 on June 14.

During the early 1970's, Bureau of Land Management fire crews reported observing king salmon in the Hodzana. Results from our investigations



	A	B	C	D	E	F	G
Telemetry	S	S,F	S	S		S	
Fish Observed				S	F	S	S
Redds Observed					F		
Carcass Observed				S	S	S	

Figure 13. Potential Summer (S) and Fall (F) chum salmon spawning areas on the Hodzana River, Alaska.

indicate that king salmon are not using the Hodzana River. Extensive gill-netting (490 hours) during the period of July 10-20, 1983, at Station H-1, failed to capture any king salmon. This sampling period coincided with king salmon movements in the Yukon River near the village of Beaver. In addition, juvenile king salmon were not collected at any of the sampling stations during the two year study.

Arctic lamprey were also collected in the Hodzana River at Stations H-1, H-5, and H-6 (Table 8). Two lamprey ammocoetes were captured at Station H-1 indicating that this stream is used for lamprey spawning.

Fish Condition

Mean condition values (K) for the predominant species collected from the Hodzana River are shown in Table 10. Mean K values for grayling ranged from 0.78 to 1.10. Most values of K were near 1.00. There were no significant differences (90% significance level) between K values for the early, mid, and late sampling periods. Condition values for Arctic grayling in the Hodzana drainage were similar to clearwater rivers for the North Slope of the Arctic NWR, for which K values ranged from 0.93 to 1.12 for the same length groups (Smith and Glesne 1982). Condition values for northern pike also did not show any significant differences between sampling periods and ranged from 0.65 to 0.79. K values for broad whitefish ranged from 1.24 to 1.77, although most broad whitefish had K values between 1.27 and 1.32.

Length-weight regression equations were calculated for grayling, northern pike, and broad whitefish. Regressions for other species could not be calculated because of the small sample size. The length-weight regression equation ($r = 0.98$) for 206 Arctic grayling is: Log Wt. (gms) = 3.128 log FL (mm) - 5.3196. The length-weight equation ($r = 0.99$) for 70 northern pike is: Log Wt. (gms) = 2.944 Log FL (mm) - 4.9951. The length-weight equation ($r = 0.95$) for 40 broad whitefish is Log Wt. (gms) = 2.9426 Log FL (mm) - 4.7325.

Fish Age

Specific age-length data for species collected on the Hodzana River are shown in the Appendix, Tables 16 through 20. The grayling age-length relationship, for the Hodzana, is compared with growth ranges of grayling from the Interior, North Slope, and Bristol Bay areas of Alaska in Figure 14. Grayling from the Hodzana River exhibited a slower growth rate than from other Interior waters. This is particularly evident for the older age fish. A comparison of scale age vs. otolith age in Figure 14 shows that age four fish, aged by scales, are the same length as five year old fish, aged by otoliths. The variation between otolith aged fish and scale aged fish increases with increasing age. Studies on North Slope grayling populations by Craig and Poulin (1975), de Bruyn and McCart (1974), and McCart, Craig, and Bain (1972) showed that the scale method tended to underestimate ages of older fish and that both methods gave similar ages through age seven or eight.

Growth of northern pike from the Hodzana was similiar to other high latitude waters (Figure 15). Scale age and cliethra age of northern pike from the Hodzana are shown in Figure 15. Greater lengths for like age classes are shown for cliethra aged fish. Cheney (1972) and Chihuly (1979) found that northern pike scales were difficult to interpret and not dependable for aging older pike. Difficulty in scale age determination is mainly attributed to crowding of annuli and the presence of false annuli.